

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-12 are pending in the present application. Claims 1, 3-5, 9, and 12 are amended, and Claim 2 is cancelled without prejudice or disclaimer by the present amendment. Claims 13-19 have been canceled without prejudice or disclaimer since they are directed to a non-elected invention.

In the outstanding Office Action, Claims 1, 3, 4, 6, and 9-12 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,022,930 to Ackerman et al. (hereinafter "Ackerman"); Claims 2, 5, 7, and 8 were rejected under 35 U.S.C. § 103(a) as unpatentable over Ackerman in view of Japanese Application No. H07-130922 to Nakashita.

Claims 1, 3, 4, 6, and 9-12 stand rejected under § 103(a) as unpatentable over Nakashita in view of Ackerman. That rejection is respectfully traversed.

Amended Claim 1 is directed to a semiconductor laser module including:

a semiconductor laser element that produces laser light;

a package hermetically sealed and having an interior space that contains the semiconductor laser element, a first side allowing said laser light to pass therethrough, and a second side positioned across said interior space from said first side;

a vent member disposed in said second side and extending from said interior space to a space that is exterior to said package, said vent member configured to transport a low heat conduction gas from a gas source to the interior space when unsealed, and said vent member configured to prevent a flow of gas between the interior space and the exterior when sealed.¹

Thus, Claim 1 recites, *inter alia*, that the vent member is arranged on the package's second side, which opposes a first side allowing passage of the laser light. Claims 1, 3, 4, 6,

¹ Claim 1 is amended to incorporate the subject matter of canceled Claim 2 and to positively recite the features set forth in the "wherein" clause of that claim as originally presented. As Claim 1 is not amended to distinguish over the applied art, Applicants respectfully note that a rejection based on newly cited art in the next official communication cannot be a final rejection.

and 9-11 depend directly or indirectly from Claim 1. Amended Claim 12 recites a means for providing a low heat conduction gas and a means for exhausting gas that are arranged in a manner similar to the arrangement of the claimed vent member.

By way of background, a semiconductor laser module is typically provided with a cooling system, to ensure optimum performance of the device in high temperature surroundings.² In order to insulate the cooled device from such surroundings, the interior space of the package is filled with a low heat conduction gas and sealed.³ Conventionally, that process is performed within a glove box, which presents several problems (*e.g.*, expense of filling glove box with appropriate gas).⁴ In view of those deficiencies, the present invention includes a vent, which does not require the use of a glove box in order to manufacture the device.

In a non-limiting example, Figure 2 illustrates an embodiment of the claimed invention. As shown, the vent 9 is connected via piping 20 to a selector valve 21, which selects between an exhaust device 18 and gas introducing device 19 in order to purge the interior of the package 1 and subsequently fill the same with a low heat conduction gas.⁵ After the package is properly filled, the vent 9 is swaged and welded shut.⁶

In another non-limiting example, Figures 1A and 1B illustrate the vent 9 as arranged on the package's tail side, which opposes the front side having an optical fiber 3 and other components 8, 13-16 extending therefrom.⁷ The opposing placement of the vent 9 and those components 3, 9, 13-16 reduces the space that the module must occupy (*e.g.*, space on a printed circuit board or heat sink) and provides a clean appearance.⁸

² Specification, page 4, lines 20-28.

³ Specification, page 5, line 28 – page 6, line 17.

⁴ *Ibid.*

⁵ Specification, page 9, line 13 – page 10, line 3.

⁶ Specification, page 10, lines 4-8.

⁷ Specification, page 6, line 31 – page 7, line 9; page 8, line 3.

⁸ Specification, page 7, lines 3-5.

The outstanding Office Action cites Ackerman as teaching the claimed vent member.⁹ However, Ackerman does not teach to arrange the conduit 71 on a side opposite to other components extending from the photovoltaic cell. Rather, Ackerman only teaches the conduits 71 as disposed on the backcap. Moreover, Ackerman does not teach placing the conduits 71 in a position that minimizes the space required to accommodate the photovoltaic cell.

The outstanding Office Action states the claimed placement of the vent would have been within the ambit of ordinary skill in the art.¹⁰ However, Applicants respectfully note that general conclusions concerning what is basic knowledge to one of ordinary skill in the art, without specific factual findings and some concrete evidence in the record to support such findings, cannot support an obviousness rejection.¹¹ Further, it is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record, as the principal evidence upon which a rejection is based.¹²

The official notice is taken to modify Nakashita and Ackerman in a manner that teaches a claimed feature, *i.e.*, to teach the claimed placement of the vent, and thus serves as principal evidence upon which the rejection is based. Therefore, Applicants respectfully traverse the official notice and request citation of a reference that teaches the proposed modification. Alternatively, Applicants respectfully request withdrawal of this rejection.

In addition to the above remarks, Applicants note that Ackerman does not address an analogous art.¹³ According to the MPEP:

In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.¹⁴

⁹ Office Action, 12/4/2003, page 3.

¹⁰ Office Action, 12/4/2003, page 3.

¹¹ MPEP §2144.03B.

¹² MPEP §2144.03A.

¹³ See MPEP 2141.01(a).

¹⁴ Ibid.

A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, *because of the matter with which it deals*, logically would have commended itself to an inventor's attention in considering his problem.¹⁵

Ackerman does not address a subject matter that logically commends itself to the field of the present inventors. More particularly, the present application focuses on the subject matter of insulating semiconductor laser modules by injecting low heat conduction gas. MPEP §2144.03A. Ackerman, on the other hand, focuses on the subject matter of protecting photovoltaic cells from condensation by injecting an oxygen-free gas.

The fact that both the present application and Ackerman address the injection of gases is of little import, as emphasized in the case law cited by the MPEP. In quoting the CAFC, the MPEP states:

The Board relied upon a reference which disclosed a hook and eye fastener for use in garments, *reasoning that all hooking problems are analogous*. The court held the reference was not within the field of applicant's endeavor, and was not reasonably pertinent to the particular problem with which the inventor was concerned because it had not been shown that a person of ordinary skill, seeking to solve a problem of *fastening a hose clamp*, would reasonably be expected or motivated to look to *fasteners for garments*. (emphasis added)¹⁶

A person addressing a problem related to semiconductor laser modules would neither reasonably expect nor be motivated to find solutions in the field of photovoltaic cells, just as a person seeking fasteners for hose clamps would not look to fasteners for garments.

The MPEP further states:

In a simple mechanical invention a broad spectrum of prior art must be explored and it is reasonable to permit inquiry into other areas *where one of ordinary skill in the art would be aware that similar problems exist*." (emphasis added)¹⁷

¹⁵ Ibid.

¹⁶ Ibid. (quoting *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992)).

¹⁷ Ibid. (quoting *Stevenson v. International Trade Comm.*, 612 F.2d 546, 550, 204 USPQ 276, 280 (CCPA 1979)).

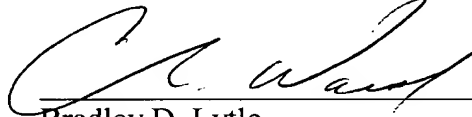
A person in the field of semiconductor laser modules would not be aware that similar problems exist in the field of photovoltaic cells.

Accordingly, for the reasons stated above, Applicants respectfully request that the § 103(a) rejection of independent Claims 1 and 12, and Claims 3-11 depending from Claim 1, be withdrawn.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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